

October  
2006

UTAH DEPARTMENT OF HEALTH

# Brigham City Health Consultation Sand & Gravel Pits– Health Education

In September 2003, the Utah Department of Health (UDOH) received a petition letter from the Brigham City Council expressing concerns about health affects associated with sand, gravel, and asphalt operations located in residential areas of Brigham City, Box Elder County, Utah. Residents in the community issued twenty-eight complaints against the two main operating pits that same summer, compared to eleven complaints received during the previous four years (1998 – 2002). Residents complained of dust, noise, and odor emanating from the nearby gravel pits, asphalt burners, and trucks. In addition, residents reported health concerns including asthma, allergies, respiratory illness, eye and nose irritation, and a perceived increase in cancers.

Through a cooperative agreement with the Agency for Toxic Substance and Disease Registry (ATSDR), the UDOH addresses environmental health issues related to exposure from hazardous waste sites and other facilities in Utah. In an effort to respond to a petition letter resulting from growing number of air quality complaints from residents living adjacent to sand, gravel, and asphalt production facilities in Brigham City, the UDOH began a health consultation on the area in October 2003. The purpose of the health consultation was to determine if residents of Brigham City, Box Elder County, Utah, are being exposed to fugitive and respirable dust at levels of public health concern, due to three sand, gravel and asphalt production sites.

The UDOH has finalized the Health Consultation and has concluded that residents of Brigham City who live near the Brigham City Sand and Gravel operations sites are exposed to airborne dust emissions. Based on the data available, concentrations of Total Suspended Particulates (TSP) and respirable dust (PM<sub>10</sub>) detected in ambient air samples from Brigham City pose no apparent public health hazard to the general population. None of the cancers evaluated in Brigham City were significantly elevated when compared to the state of Utah. Due to the small area and numbers of cases, rates for respiratory illness could not be calculated.

The final health consultation is now available. If you would like a copy of the full report, a copy is available through the Box Elder County Health Department, Brigham City Library, or online at [www.health.utah.gov/enviroepi](http://www.health.utah.gov/enviroepi).



# Air Sampling & Dust Exposure

---

There are many things floating around in the air, the majority of which you cannot see. They are a kind of air pollution called particulates. Particulates can come in almost any size and shape, and can be solid or liquid droplets.

Since citizen complaints were primarily directed towards dust exposure, sampling was limited to **particulate matter** (PM<sub>10</sub>) and **total suspended particulates** (TSP).

**PM<sub>10</sub>**, are coarse particles such as smoke, dirt, dust, mold, spores and pollen. These particles are made by crushing or grinding rocks and soil then blown by the wind. These particulates are of health concern since they can evade the body's natural defenses (nose, mouth, trachea) and accumulate in the lungs causing respiratory problems. Sampling performed for PM<sub>10</sub> was compared to EPA standards and the total respirable dust (PM<sub>10</sub>) sample concentrations were well below the health-based EPA guidelines. None of the sampling conducted for PM<sub>10</sub> in Brigham City was in violation of EPA standards and there is no indication of a threat to public health.

**Total suspended particulates (TSP)** or fugitive dust, refers to particles of all sizes. The larger particles are filtered out by the body's respiratory system before they can enter the lungs. These particulates are a nuisance, but do not pose the health concern as the previously discussed smaller sized particles such as PM<sub>10</sub>. Sampling by Department of Air Quality (DAQ) indicates that the dust emitted from the sand, gravel, and asphalt operations is principally TSP of larger particle size. These particulates are more of a nuisance and do not pose a health concern.

Based on data available, the concentrations of TSP and PM<sub>10</sub> detected  
in air samples from Brigham City pose **no** apparent public health hazard  
to the general population

UDOH recommends additional air sampling be conducted in Brigham City in residential areas near the asphalt production facilities during the summer months at a height closer to the breathing zone of children and adults. The Environmental Epidemiology Program (EEP) recommends that sampling should be done for VOCs, PAHs, semi-volatiles, carbon monoxide, nitrogen oxides and sulfur dioxides in Brigham City. In addition, since no analysis of the dust for crystalline silica was conducted, the EEP also recommends that an analysis for crystalline silica (total and respirable) in the dust be performed.

## Dust Control

---

When fine particle levels are high outdoors, they will likely be high indoors, since fine particles can enter the home even when windows and doors are closed. Here are some helpful tips to reduce your exposure to dust:

- Remove shoes before entering.
- Wet-mop floors.
- Damp-dust counters, tables and window ledges regularly.
- Bathe your pets frequently.
- Change A/C and furnace filters regularly.
- Keep windows and doors shut on windy days.
- Wash the soil from homegrown fruits and vegetables before bringing them into the home.
- Consider upgrading your vacuum cleaner bags to those that filter better or simply change your bag more often. A HEPA (high-efficiency particulate air) filter reduces dust levels better.
- When the air quality improves, open up windows and air out your home.

# Cancer

---

Cancer is a name applied to many diseases with many different causes, cancer is not a single disease, it does not have a single cause. Cancers are very common. Nearly half of all men and one-third of all women in the U.S. will develop cancer at some point in their lives. Statistically, it is normal for cancer rates to fluctuate in smaller communities. Some years the rates are higher, other years lower, eventually the rates tend to balance out over time.

The health consultation evaluated prostate, colon (excluding rectum), urinary, lung and bronchial, and female breast cancers. None of the cancers evaluated in Brigham City were significantly elevated when compared to the state of Utah.

It is important to know that less than 5% of all cancers are believed to be due to factors in the environment such as environmental pollution. More information regarding cancer and the environment can be found at [www.cancer.gov](http://www.cancer.gov) or by contacting the UDOH @ 801-538-6191.

# Respiratory Illnesses

---

Many residents of Brigham City worried that the sand and gravel pits were causing respiratory illnesses within their families. Illnesses such as asthma, laryngitis, bronchitis, allergies, sinusitis and lung diseases due to external agents and respiratory infections possible from exposure to airborne contaminants were listed as the main respiratory illness affecting the residents of Brigham City. The Utah Department of Health as part of the Health Consultation evaluated these respiratory illness. Due to the small area and numbers, no relationship between respiratory illnesses and the dust exposure from the sand and gravel pits could be calculated.

According to The National Institute of Environmental Health Sciences about 50 million people in the U.S.—one in five adults and kids— have allergies. Sneezing, wheezing, runny nose and itchy eyes are all symptoms associated with allergies. These symptoms can be triggered by pollen, dust, pollutants and chemicals in the air and in the home.

Following the dust control measures listed may help reduce the health affects associated with various respiratory illnesses.

# Odor

---

Just because it smells does not mean it is toxic. Health effects or symptoms from odor exposure can be traced to two causes, the individual's sensitivity to the odor or the odor itself. Symptoms vary depending on the frequency, concentration and duration of the odor. The most common complaints are eye, nose and throat irritation, headache, nausea, sore throat, cough, nasal congestion, drowsiness and mood changes. Odors in the air are usually not at levels that cause disease. Symptoms generally only occur at the time of exposure and decrease within a short time after the odor ceases.

Utah Department of Health  
288 North 1460 West  
Po Box 142104  
Salt Lake City, Utah 84114-2104

Please contact the UDOH with any additional comments, questions or concerns you may have regarding this pamphlet or the Brigham City Sand and Gravel Pits...

Utah Department of Health, Environmental Epidemiology, Po Box 142104, Salt Lake City, Utah 84114

**D. Jason Scholl, Ph.D.**  
**Health Assessor**  
Environmental Epidemiology  
dscholl@utah.gov  
(801) 538-6191



**McKell Drury**  
**Health Educator**  
Environmental Epidemiology  
mdrury@utah.gov  
(801) 538-6191



Agency for Toxic Substance  
and Disease Registry  
(ATSDR)  
[www.atsdr.cdc.gov](http://www.atsdr.cdc.gov)

